REMARKS

Claims 1-20 are pending in the application. Claims 1-20 are rejected.

In the Office Action, the Examiner rejected Claims 1-5, 8, 10-11, 13, and 15-20 pursuant to 35 U.S.C. § 102(b) as being anticipated by Li (U.S. Patent No. 5,582,173). Claims 1-6, 8, and 10-11 were rejected pursuant to 35 U.S.C. § 102(e) as being anticipated by Jong et al. (U.S. Patent No. 6,572,549). Claim 7 was rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over either Li or Jong et al., and in further view of Weng et al. (U.S. Patent No. 5,782,766). Claims 6, 12, 14, and 17-20 were rejected pursuant to 35 U.S.C. §103(a) as unpatentable over Li and further in view of Sumanaweera et al. (U.S. Patent No. 6,306,091). Claims 9 and 15-16 were rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over Jong et al., and further in view of Li. Claim 12 was rejected pursuant to 35 U.S.C. §103(a) as being unpatentable over Jong et al., and further in view of Sumanaweera et al.

Claims 1, 6, 13, and 18 have been amended. New Claims 21 and 22 have been added. Applicants respectfully request reconsideration of the rejections of Claims 1-22, including independent Claims 1, 13 and 18.

Independent Claim 1 recites acquiring sets of data representing overlapping but different three-dimensional volumes where the volumes have x, y, and z dimensions each extending for multiple voxels, and combining data from one set with data of the other set. The amendment to Claim 1 is for clarity and does not narrow the claim because a volume acquired with a volumetric imaging transducer extends for multiple voxels along three dimensions. Li and Jong et al. do not disclose these limitations.

Regarding Li, the Examiner notes on page 4 of the Office Action that the argument based on Li assumes the claims (except 6 and 12) do not specify true 3D volume subset acquisition. Claim 1 claims a volume, so Li does not disclose the limitations of claim 1.

Additionally Li discloses scans of a same volume (Col. 14, lines 55-58 and Col. 15, lines 8-10), and thus does not disclose overlapping but different volumes. The detailed embodiments taught by Li use a 1D array (Col. 5, lines 35-40 and Col. 2, lines 24-57) and are meant not to use a volumetric imaging transducer (Col. 1, line 55 – Col. 2, lines 14).

Similarly to Li, Jong et al. assemble different slices into a 3D volume. As noted by the Examiner, a planar scan may capture a certain amount of elevation in a single elevation voxel. Jong

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ct al. disclose each slice along a plane with a single elevation voxel as a volume (Col. 4, lines 64-67). By moving a scan head along elevation, the frames of data overlap, are registered and combined into a 3-D EFOV (Col. 2, lines 6-15). The extension of the EFOV is the assembled 3D field of view rather than the usual single slice. In the summary, Jong et al. generally describe acquiring overlapping frames or volumes for assembly (Col. 5, lines 1-5). In the detained description, Jong et al. create the 3D EFOV from 2D image frames by registering and combining them (Col. 8, lines 43-59). A 1D or 2D array may be used (Col. 9, lines 16-30). While the use of a 2D array to scan in three dimensions during movement enables volumes with overlapping speckle patterns to be acquired (Col. 9, lines 25-30), Applicants respectfully submit that there is no disclosure of the size of the volumes. The 3D scan of Jong et al. may allow control of the elevation extent of a single voxel and acquiring multiple slices faster than manual translation alone. Because a 3D EFOV is formed from 2D frames based on the earlier disclosures of Jong et al., the 3D EFOV with a 2D array disclosure suggests similar scan but performed more rapidly. Applicants respectfully submit that there is no disclosure of acquiring volumes having multiple voxels in all three dimensions and then combining the volumes.

Independent Claims 13 and 18 also recite volumes having multiple voxels in all three dimensions, and are thus allowable for similar reasons.

Dependent Claims 2-12, 14-17, and 19-22 depend from the independent claims discussed above, and are thus allowable for at least the same reasons. Further limitations distinguish the dependent claims from the cited references.

For example, Claim 4 claims acquiring two volumes with the transducer stationary at different locations. Jong et al. move the transducer during acquisition. Li desire constant speed of movement, whether lateral or rational movement.

As another example, claims 12 recites morphing a feature as a function of pressure distortion. Sumanaweera et al. avoid the effects of pressure by using local rigid body analysis instead of global (Col. 15, lines 8-21). Sumanaweera et al. do not disclose morphing in the cited section.

As yet another example, claims 15 recites a wobbler transducer. Li notes use of mechanical structure for scanning (Col. 1, lines 63 – Col. 2, line 7), but teaches against the use of such

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structures. Thus Applicants respectfully submit that a person of ordinary skill in the art would not have used a wobbler from Li in combination with Jong et al. Claim 16 reciting a position sensor, is allowable as well because Li teaches against the use of such devices.

As another example claim 19 recites displaying where the combined regions are larger than the transducer is operable to scan without translation. Li and Sumanaweera et al. do not disclose these limitation for volumes with multiple voxels along each dimension.

CONCLUSION

Applicants respectfully submit that all of the pending claims are in condition for allowance and seeks early allowance thereof. If for any reason, the Examiner is unable to allow the application but believes that an interview would be helpful to resolve any issues, he is respectfully requested to call the undersigned at (650) 943-7350 or Craig Summerfield at (312) 321-4726.

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